

SAFETY DATA SHEET



1. Identification

| | | |
|---|--|--|
| Name of the substance or mixture (trade name) | Kuraray Poval™ Polyvinyl Alcohol Resin F.H. P.H. (KAP) | |
| Synonyms | Fully Hydrolyzed Kuraray Poval - 5-98, 28-98, 30-98 SI, Partially Hydrolyzed Kuraray Poval - 5-88, 5-88 MB, 22-88 MB, 22-88 SB, 22-88, 22-88 PK, 27-96, 30-88, 32-80, 35-80, 44-88, 44-88 SB, 48-80, 49-88 | |
| Major recommended uses for the substance or mixture | For industrial use only. Dissolution into water for use as a synthetic binder, coating, or viscosity modifier. Raw material for textile sizing agents, paper processing agents, adhesives, barrier coatings, soluble films, and synthesis of polyvinyl butyral resins. | |
| Specific restrictions for use of the substance or mixture | Not available. | |
| Manufacturer/Importer/Distributor information | | |
| Manufacturer | | |
| Company name | Kuraray Asia Pacific Pte. Ltd. | |
| Address | Manufacturing Site :10 Sakra Avenue, Singapore 627887 | |
| Sales Office: | 331 North Bridge Road #18-02 Odeon Towers Singapore 188720 | |
| Department: | Production | |
| Telephone | +65 68677088 Ext. 201 | |
| | Person-In-Charge: Shift Supervisor / Superintendent | |
| | +65 68677108 | |
| Fax: | 65-68677104 | |
| e-mail | sales@kuraray.com.sg | |
| Emergency telephone number | +65 68677088 Ext. 201 | |
| | +65 68677108 | |
| Supplier | | |
| Company name | Kuraray America, Inc. | |
| Address | 2625 Bay Area Blvd, Suite 600 Houston, TX 77058 | |
| | USA | |
| Telephone | 1-800-423-9762 | |
| | +1-281-283-1711 | |
| e-mail | info@kurarayamerica.com | |

2. Hazards identification

Classification of the substance or mixture

| | | |
|-----------------------|---|------------|
| Physical hazards | Not classified. | |
| Health hazards | Acute toxicity, oral | Category 5 |
| | Specific target organ toxicity, single exposure | Category 1 |
| Environmental hazards | Not classified. | |

GHS labeling elements, including precautionary statements

Hazard symbol(s)



Signal word

Danger

Hazard statement(s)

May be harmful if swallowed. May form combustible dust concentrations in air. Causes damage to organs.

| Precautionary statement(s) | |
|---|--|
| Prevention | Prevent dust accumulation to minimize explosion hazard. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Ground/bond container and receiving equipment. Do not breathe dust. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. |
| Response | IF exposed or concerned: Call a POISON CENTER/doctor. |
| Storage | Store locked up. |
| Disposal | Dispose of contents/container in accordance with local/regional/national/international regulations. |
| Other hazards which do not result in classification | May form combustible dust concentrations in air. |
| Supplemental information | None. |
| Other information | The Safety Information Sheet Chemicals of hazardous chemical can be obtained through phone, email or on the company website. |

3. Composition/information on ingredients

Mixture

| Common chemical name or technical name | CAS number | Concentration or concentration range |
|--|------------|--------------------------------------|
| Polyvinyl alcohol, fully hydrolyzed | 9002-89-5 | >90 |
| Polyvinyl alcohol, partially hydrolyzed | 25213-24-5 | >90 |
| Methanol | 67-56-1 | <3 |
| Methyl acetate | 79-20-9 | <3 |
| Other components below reportable levels | | <5 |

4. First-aid measures

First-aid measures

| | |
|--|--|
| Inhalation | Move to fresh air. Call a physician if symptoms develop or persist. |
| Skin contact | Wash off with soap and water. Get medical attention if irritation develops and persists. |
| Eye contact | Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists. |
| Ingestion | Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell. |
| Most important symptoms/effects, acute and delayed | Dusts may irritate the respiratory tract, skin and eyes. |
| Personal protection for first-aid responders | If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. |
| Notes to physician | Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed. |

5. Fire-fighting measures

Means of fire extinguishing

| | |
|---|---|
| Suitable extinguishing media | Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂). Apply extinguishing media carefully to avoid creating airborne dust. |
| Unsuitable extinguishing media | Do not use water jet as an extinguisher, as this will spread the fire. |
| Specific hazards arising from the chemical | Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. |
| Special fire fighting procedures | In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. |
| Protective measures taken by firefighting crews | Self-contained breathing apparatus and full protective clothing must be worn in case of fire. |
| Specific methods | Use standard firefighting procedures and consider the hazards of other involved materials. |
| General fire hazards | May form combustible dust concentrations in air. |

6. Control measures for spills and leaks

Personal precautions, protective equipment and emergency procedures

To be taken by those who are not involved in rendering emergency services Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Use only non-sparking tools. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Wear appropriate protective equipment and clothing during clean-up. Do not breathe dust. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

To be taken by those who are involved in rendering emergency services Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

Environmental precautions

Methods and materials for containment and cleaning up Avoid discharge into drains, water courses or onto the ground. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Collect dust using a vacuum cleaner equipped with HEPA filter.

Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Emergency procedures

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Stop leak if possible without any risk. Ventilate the contaminated area. Avoid the generation of dusts during clean-up.

7. Handling and storage

Precautions for safe handling

Minimize dust generation and accumulation. Avoid significant deposits of material, especially on horizontal surfaces, which may become airborne and form combustible dust clouds and may contribute to secondary explosions. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Explosion-proof general and local exhaust ventilation. Do not breathe dust. Do not taste or swallow. Avoid prolonged exposure. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Control parameters Follow standard monitoring procedures.

Occupational exposure limits

Brazil. OELs (Ordinance No. 3214, 6/8/78, NR-15, Annex 11 (amended through ACGIH))

| Components | Type | Value |
|------------------------------|------|----------------------------------|
| Methanol (CAS 67-56-1) | TWA | 200 mg/m ³ 156 ppm |
| Methyl acetate (CAS 79-20-9) | STEL | 250 ppm |
| | TWA | 200 ppm |

US. ACGIH Threshold Limit Values

| Components | Type | Value | Form |
|------------------------------|------|---|---|
| Dust | TWA | 3 mg/m ³ 10 mg/m ³ | Respirable particles. Inhalable particles. |
| Methanol (CAS 67-56-1) | STEL | 250 ppm | |
| | TWA | 200 ppm | |
| Methyl acetate (CAS 79-20-9) | STEL | 250 ppm | |
| | TWA | 200 ppm | |

Biological limit values

ACGIH Biological Exposure Indices

| Components | Value | Determinant | Specimen | Sampling Time |
|------------------------|---------|-------------|----------|---------------|
| Methanol (CAS 67-56-1) | 15 mg/l | Methanol | Urine | * |

* - For sampling details, please see the source document.

Exposure guidelines

Brazil OELs: Skin designation

Methanol (CAS 67-56-1) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Methanol (CAS 67-56-1) Can be absorbed through the skin.

Appropriate engineering controls

Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. If engineering measures are not sufficient to maintain concentrations of dust particulates below the Occupational Exposure Limit (OEL), suitable respiratory protection must be worn.

Personal protective measures

| | |
|--------------------------|--|
| Eyes and face protection | Wear safety glasses with side shields (or goggles). |
| Skin protection | |
| Hand protection | Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier. |
| Other | Wash hands thoroughly after handling. Use of an impervious apron is recommended. |
| Respiratory protection | Chemical respirator with organic vapor cartridge, full facepiece, dust and mist filter. |
| Thermal hazards | Wear appropriate thermal protective clothing, when necessary. |
| Hygiene measures | Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. |

9. Physical and chemical properties

Appearance

| | |
|---|-----------------------------|
| Physical state | Solid. |
| Form | Powder. / Granular. |
| Color | White or pale yellow. |
| Odor | Mild. Vinegar-like. |
| Odor threshold | Not available. |
| pH | 4.5 - 7 (4% conc. in water) |
| Melting point/freezing point | 392 - 446 °F (200 - 230 °C) |
| Initial boiling point and boiling temperature range | Not applicable. |
| Flash point | > 199.4 °F (> 93.0 °C) |
| Evaporation rate | Not applicable. |
| Flammability (solid, gas) | Not available. |

Upper/lower flammability or explosive limits

| | |
|--------------------------------|----------------|
| Flammability limit - lower (%) | Not available. |
| Flammability limit - upper (%) | Not available. |
| Explosive limit - lower (%) | Not available. |
| Explosive limit - upper (%) | Not available. |
| Vapor pressure | Not available. |
| Vapor density | Not available. |
| Relative density | Not available. |
| Solubility(ies) | |
| Solubility (water) | > 80 % |

| | |
|--|----------------------------------|
| Partition coefficient (n-octanol/water) | Not available. |
| Auto-ignition temperature | > 824 °F (> 440 °C) |
| Decomposition temperature | > 320 °F (> 160 °C) |
| Viscosity | 3 - 52 mPa·s (4% conc. in water) |
| Other physical and chemical parameters | |
| Bulk density | 400 - 700 kg/m³ |
| Density | estimated |
| Explosive properties | Not explosive. |
| Oxidizing properties | Not oxidizing. |
| Percent volatile | < 5 % |

10. Stability and reactivity

| | |
|------------------------------------|---|
| Reactivity | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| Chemical stability | Material is stable under normal conditions. |
| Possibility of hazardous reactions | No dangerous reaction known under conditions of normal use. |
| Conditions to avoid | Keep away from heat, sparks and open flame. Avoid temperatures exceeding the decomposition temperature. Avoid temperatures exceeding the flash point. Contact with incompatible materials. Minimize dust generation and accumulation. |
| Incompatible materials | Strong oxidizing agents. |
| Hazardous decomposition products | Alcohols. Carbon oxides. Aldehydes. Organic acids. |

11. Toxicological information

Information on likely routes of exposure

| | |
|----------------|---|
| Inhalation | May cause damage to organs by inhalation. Dust may irritate respiratory system. |
| Skin contact | Dust or powder may irritate the skin. Repeated exposure may cause skin dryness or cracking. |
| Eye contact | Dust may irritate the eyes. |
| Ingestion | May be harmful if swallowed. |
| Symptoms | Dusts may irritate the respiratory tract, skin and eyes. |
| Acute toxicity | May be harmful if swallowed. |

| Components | Species | Test Results |
|-----------------------------------|--|-----------------------|
| Methanol (CAS 67-56-1) | | |
| Acute | | |
| Dermal | | |
| LD50 | Rabbit | 15840 mg/kg |
| Inhalation | | |
| LC50 | Rat | > 145000 ppm, 1 hours |
| Oral | | |
| LD50 | Rat | 9100 mg/kg |
| Methyl acetate (CAS 79-20-9) | | |
| Acute | | |
| Dermal | | |
| LD50 | Rabbit | >= 5000 mg/kg |
| Skin irritation and corrosion | Prolonged skin contact may cause temporary irritation. | |
| Serious eye damage/eye irritation | Direct contact with eyes may cause temporary irritation. | |
| Respiratory or skin sensitization | | |
| Respiratory sensitization | Not a respiratory sensitizer. | |
| Skin sensitization | This product is not expected to cause skin sensitization. | |
| Germ cell mutagenicity | No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic. | |
| Carcinogenicity | | |

IARC Monographs. Overall Evaluation of Carcinogenicity

Polyvinyl alcohol, fully hydrolyzed (CAS 9002-89-5) 3 Not classifiable as to carcinogenicity to humans.

Toxic to reproduction This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Causes damage to organs. Visual organs. Central nervous system.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

| Components | Species | Test Results |
|-------------------------------|---|--|
| Methanol (CAS 67-56-1) | | |
| Aquatic | | |
| Fish | LC50 | Fathead minnow (<i>Pimephales promelas</i>) 28200 mg/l, 96 hours |
| Methyl acetate (CAS 79-20-9) | | |
| Aquatic | | |
| Algae | EC50 | Freshwater algae 120 mg/l, 72 hours |
| | NOEC | Freshwater algae 120 mg/l, 72 hours |
| Crustacea | EC50 | <i>Daphnia magna</i> 1026.7 mg/l, 48 hours |
| Fish | LC50 | <i>Brachydanio rerio</i> 250 - 350 mg/l, 96 hours |
| Persistence and degradability | No data is available on the degradability of this product. | |
| Bioaccumulative potential | | |
| Partition coefficient | | |
| n-octanol / water (log Kow) | | |
| Methanol (CAS 67-56-1) | | -0.77 |
| Methyl acetate (CAS 79-20-9) | | 0.18, 20°C |
| Bioconcentration factor (BCF) | Not available. | |
| Mobility in soil | No data available for this product. | |
| Other adverse effects | No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component. | |

13. Considerations on final disposal

Recommended methods for final destination

Residual waste Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). Dispose of in accordance with all applicable regulations.

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

Local disposal regulations Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

14. Transport information

National regulations

ANTT

Not regulated as dangerous goods.

International regulations

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Not applicable.
Annex II of MARPOL 73/78 and
the IBC Code

15. Regulatory information

Federal regulations This chemical product safety data sheet was prepared in accordance with the Brazilian Standard (ABNT NBR 14725-4: (Safety data sheet for chemicals (SDS))).

Brazil. Controlled products that must be reported to the Army (Decree No. 3655, Annex 1, as amended)

Not applicable.

Brazil. Drug precursors (Ordinance No. 1.274)

Methanol (CAS 67-56-1)

Brazil. Ozone depleting substances (Decree No. 99.280, Annexes A, B, C and E, as amended)

Not applicable.

Brazil. Use and physiological effects of chemical products (Decree No. 3665, Annex 3)

Not applicable.

POPs (Decree No. 5.472 promulgates the Stockholm Convention on persistent organic pollutants)

Not listed.

International regulations

Montreal Protocol

Not applicable.

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Kyoto protocol

Not applicable.

Basel Convention

Not applicable.

16. Other information

Significant information, yet not Issued by Kuraray America Inc. on behalf of Kuraray Asia Pacific PTE LTD.
specifically related to the
previous sections

Legends and abbreviations Not available.

Disclaimer Do not use Kuraray materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless the material has been provided from Kuraray under a written contract that is consistent with Kuraray policy regarding medical applications and expressly acknowledges the contemplated use. For further information, please contact your Kuraray representative.

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